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SFUND RECORDS CTR 88072801

MEMORANDUM

TO:

Nancy Riveland-Har

Remedial Project Manager Cleanup Section 4, SFD-7-4

THROUGH:

Rose Fong

ESAT Project Officer

Quality Assurance (QA) Office, PMD-3

FROM:

Doug Lindelof

Data Review and QA Document Review Task Manager Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68-W-01-028

Task Order No.: B01

Technical Direction No.: B0105086 Amendment 1

DATE:

May 8, 2002

SUBJECT:

Review of Analytical Data, Tier 3

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

SITE ACCOUNT NO.:

Omega Chem OU-2

CERCLIS ID NO.:

09 BC LA02 CAD042245001

CASE NO.:

11-BCCO-15.0

SDG NO.:

01K017

LABORATORY:

EMAX Laboratories, Inc. (EMAX)

ANALYSIS:

Volatiles

SAMPLES:

10 Water Samples

COLLECTION DATE: November 1, 2001

REVIEWER:

Denise McCaffrey, ESAT/LDC

The comments and qualifications presented in this report have been reviewed by the EPA Task Order . Project Officer (TOPO) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.

Attachment

cc:

ESAT File

SAMPLING ISSUES: [X] Yes

[] No

Data Validation Report

Case No.:

11-BCCO-15.0 SDG No.: 01K017

Site: Laboratory: Omega Chem OU-2 EMAX Laboratories, Inc.

Reviewer:

Denise McCaffrey, ESAT/LDC

Date:

May 8, 2002

I. Case Summary

SAMPLE INFORMATION:

Samples: GW401-PP076-0056, GW401-PP077-0060,

> GW401-PP078-0081, GW401-PP079-0088, GW401-PP079-1088, GW401-PP081-4006, GW401-PP081-0071, GW401-PP080-0071,

GW401-PP0812-2006, and GW401-PP082-0080

Concentration and Matrix:

Low Level Water

Volatiles Analysis:

> SOW: SW-846 Method 8260B

Collection Date: November 1, 2001 Sample Receipt Date: November 2, 2001

Extraction Date: Not Applicable

Analysis Date: November 3 and 4, 2001

FIELD QC:

Trip Blanks (TB): GW401-PP082-2006

Field Blanks (FB): Not Provided

Equipment Blanks (EB): GW401-PP081-4006

Background Samples (BG): Not Provided

> Field Duplicates (D1): GW401-PP079-0088 and GW401-PP079-1088

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBLK1W: GW401-PP076-0056, GW401-PP077-0060,

> GW401-PP078-0081, GW401-PP079-0088, GW401-PP079-1088, GW401-PP080-0071,

and GW401-0082-2006

MBLK2W: GW401-PP078-0081DL, GW401-PP078-0081DL2,

GW401-PP079-0088DL, GW401-PP081-0071,

GW401-PP082-0080

MBLK3W: GW401-PP079-1088DL and GW401-PP081-4006

TABLES:

Analytical Results with Qualifications

Data Qualifier Definitions for Organic Data Review

SAMPLING ISSUES:

Detected results for chloroform are qualified as nondetected and estimated (U,J) due to contamination in equipment blank GW401-PP081-4006 and trip blank GW401-PP082-2006.

Although tetrachloroethene was detected at a concentration of 0.21 μ g/L in trip blank GW401-PP082-2006, no data are qualified because tetrachloroethene was either not detected in the associated samples or was detected at more than 5 times the amount in the trip blank.

Matrix spike/matrix spike duplicate (MS/MSD) analysis was not performed because no MS/MSD sample was designated in this sample delivery group (SDG).

ADDITIONAL COMMENTS:

Dichlorofluoromethane was not analyzed. This compound is included in the REAP DQI Table.

The REAP DQI Table specifies that four surrogate spikes (Toluene-d8, BFB, 1,2-dichloroethane-d4, and dibromofluoromethane) are required. Only three surrogate spikes (Toluene-d8, BFB, and 1,2-dichloroethane-d4) were used by the laboratory. The accuracy of the analyses were assessed based on the same grouping of surrogates and internal standards used by the laboratory.

Tentatively identified compounds (TICs) were not reported by the laboratory.

This report was prepared in accordance with the following documents:

- ESAT Region 9 Data Quality Indicator (DQI) Table for *Volatile Organic Compounds (VOCs)* by SW-846 Method 8260, Appendix B, Attachment 2, Section J, Contract No. 68-R9-00-11, Regional Environmental Analytical Procurement (REAP);
- EPA SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 2, December 1996;
- ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services (CLPAS) Volatile and Semivolatile Data Packages; and
- USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999.

II. Validation Summary

HOLDING TIMES GC/MS TUNE/GC PERFORMANCE	YES YES	
INITIAL CALIBRATIONS	YES	
CONTINUING CALIBRATIONS .	NO	C, D
LABORATORY BLANKS	YES	
FIELD BLANKS	NO	В
SURROGATES	NO	Е
LABORATORY CONTROL SAMPLE/DUPLICATE	YES	
MATRIX SPIKE/DUPLICATE	N/A	
INTERNAL STANDARDS	YES	
COMPOUND IDENTIFICATION	NO	Н
COMPOUND QUANTITATION	YES	A, G
SYSTEM PERFORMANCE	YES	
FIELD DUPLICATE SAMPLE ANALYSIS	NO	F

N/A = Not Applicable

Acceptable/Comment

III. Validity and Comments

- A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.
 - All results below the contract required quantitation limits

Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

- B. The following results are qualified as nondetected and estimated due to method blank and field blank contamination, and are flagged "U,J" in Table 1A.
 - Chloroform in samples GW401-PP076-0056, GW401-PP077-0060, GW401-PP078-0081, GW401-PP079-0088, and GW401-PP079-1088

Chloroform was found in equipment blank GW401-PP081-4006 and trip blank GW401-PP082-2006 at concentrations of 0.53 μ g/L and 0.64 μ g/L, respectively. Results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (U,J). If the sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

A trip blank is laboratory reagent water which is shipped from the laboratory to the field with the empty sample containers and back to the laboratory with the filled sample containers. A trip blank is intended to detect contaminants introduced during the transport of the samples to the laboratory, although any laboratory introduced contamination will be present. Contaminants that are found in the trip blank which are absent in the laboratory blank could be indicative of a problem in transportation, storage, the bottle preparation procedure, or other indeterminate error.

An equipment blank is clean water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

- C. Detected results and quantitation limits for the following analytes are qualified as estimated due to low relative response factors (RRFs) in the continuing calibration, and are flagged "J" in Table 1A.
 - Acetone in sample GW401-PP081-4006 and method blank MBLK3W

An average RRF of 0.048 was observed for acetone in the continuing calibration performed on November 4, 2001. This value is below the 0.05 validation criterion.

Detected results for the analyte listed above should be considered as the minimum values at which this analyte is present in the samples. Where the results are nondetected, false negatives may exist.

The relative response factor evaluates instrument sensitivity.

- D. Detected results and quantitation limits for the following analytes are qualified as estimated due to a large percent difference (%D) in the continuing calibration, and are flagged "J" in Table 1A.
 - Acetone in samples GW401-PP076-0056, GW401-PP077-0060, GW401-PP078-0081, GW401-PP079-0088, GW401-PP079-1088, GW401-PP080-0071, GW401-PP082-2006, and method blank MBLK1W
 - Hexachlorobutadiene in all samples and method blanks

A %D of 31.4% (biased high) was observed for acetone in the continuing calibration performed on November 2, 2001. %Ds of 31.4%, 38.5%, and 33.8% (biased low) were observed for hexachlorobutadiene in the continuing calibrations performed on November 2, 3, and 4, 2001, respectively. These values exceed the $\pm 30.0\%$ validation criterion.

The continuing calibration checks the instrument's performance daily.

- E. Detected results and quantitation limits for the following analytes are qualified as estimated due to surrogate recovery outside QC limits, and are flagged "J" in Table 1A.
 - {1,2-Dichloroethane-d4}
 - 1,1-Dichloroethene, trichlorofluoromethane, and freon 113 in samples GW401-PP077-0060, GW401-PP078-0081, GW401-PP079-0088, and GW401-PP079-1088
 - cis-1,2-Dichloroethene in samples GW401-PP077-0060 and GW401-PP078-0081
 - Chloroform in sample GW401-PP082-2006

Surrogate recoveries exceeded the QC limits are shown below for the samples listed above.

<u>Sample</u>	<u>Surrogate</u>	% Recovery	QC Limits
GW401-PP077-0060	1,2-Dichloroethane-d4	119	85-115
GW401-PP078-0081	1,2-Dichloroethane-d4	. 119	85-115
GW401-PP078-0081DL2	1,2-Dichloroethane-d4	121	85-115
GW401-PP079-0088	1,2-Dichloroethane-d4	119	85-115
GW401-PP082-4006	1,2-Dichloroethane-d4	123	85-115

Detected results for affected analytes may be biased high. The samples were not re-analyzed.

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogates prior to purging. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

F. In the analysis of the field duplicate pairs, the following outliers were obtained for the analytes listed below.

	GW401-PP079-0088 (D1)	GW401-PP079-1088 (D1)	
<u>Analyte</u>	Conc., μ g/L	Conc., $\mu g/L$	RPD (<25%)
1,1-Dichloroethene	e 4.3	12	94
Benzene	0.24L	1U	N/A
Trichlorofluorome	thane 0.66L	0.25L	N/A
Acetone	7.5L	3L	N/A
Trichloroethene	240	580	83
Tetrachloroethene	8.8	6.1	36
Freon 113	2.9	1.8	47
Methylene chloride	e 0.21L	1U	N/A

A relative percent difference (RPD) value is not calculated and is presented above as "N/A" when an analyte is detected in a sample but is either below the CRQL or is nondetected (U) at the CRQL in the associated field duplicate sample, or when an analyte is detected below the CRQL in both field duplicate samples. The effect on data quality is not known.

RPDs of 94%, 83%, 36%, and 47% were obtained for 1,1-dichloroethene, trichloroethene, tetrachloroethene, and freon 113, respectively, in the analysis of field duplicate samples GW401-PP079-0088 and GW401-PP079-1088. The effect on data quality is not known.

The analysis of field duplicate samples is a measure of both field and analytical precision. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix or poor sampling or analysis technique.

G. Sample GW401-PP078-0081 was analyzed at a 10-fold dilution due to the high levels of 1,1-dichloroethene, trichlorofluoromethane, acetone, and trichloroethene. A further dilution of 500-fold was analyzed due to the high levels of tetrachloroethene and freon 113. Results for 1,1-dichloroethene, trichlorofluoromethane, acetone, trichloroethene, tetrachloroethene, and freon 113 are reported from the diluted samples in Table 1A; results for all other analytes are reported from the undiluted sample.

Sample GW401-PP079-0088 was analyzed at a 10-fold dilution due to the high level of trichloroethene. The result for trichloroethene is reported from the diluted sample in Table 1A; results for all other analytes are reported from the undiluted sample.

Sample GW401-PP079-1088 was analyzed at a 25-fold dilution due to the high level of trichloroethene. The result for trichloroethene is reported from the diluted sample in Table 1A; results for all other analytes are reported from the undiluted sample.

H. Acetone was detected in the sample GW401-PP078-0081 at a concentration of 130 μ g/L. However, the presence of acetone cannot be verified by the data reviewer because of the high concentration of freon 113 (1000 μ g/L) in the sample.

ANALYTICAL RESULTS Tier 3 Table 1A

SDG No.: 01K017

Case No.: 11-BCCO-15.0

Site: Omega Chem OU-2

Lah: FMAX

Reviewer: Denise McCaffrey, ESAT/LDC

Date: May 8, 2002

QUALIFIED DATA
Concentration in uo/L

Analysis Type: Water Samples for Volatiles by

EPA Method 8260B

Station Description Sample ID GW401-PP076-0056 GW401-PP077-0060 GW401-PP078-0081 GW401-PP079-0088 D1 GW401-PP079-1088 D1 GW401-PP081-4006 FB GW401-PP081-0071 Collection Date 11/01/01 11/01/01 11/01/01 11/01/01 11/01/01 11/01/01 11/01/01 Dilution Factor Volatile Compound Result Val Result Result Val Com Com Result Val Com Val Com Result Val Com Result Val Com Result Val Com 1.1-Dichloroethane 1U 1U 111 1U 4.3 EG 1.1-Dichloroethene 0 211 √∕,12 ١Ū ·** 10 AF 120 FÉ ≫FF.® - 1U 1.1-Dichloropropene 1U 10 1U 1U 1U ำั้บ 1.2.3-Trichloropropane 1U าใบ ំ 1ប ** 1U 1U 1.2.4-Trimethylbenzene 1U 1U 1U 1U 1U 10 1:2-Dibromo-3-chloropropane 2U 2Ú 2Ú 2U "2Ū[;] 2U 2U 45 1,2-Dichlorobenzene 1U 11 1U 1U 1U 1U 0.5U 0.5U 0.5U 1:2-Dichtoroethane 0.5U ີ 0.5ປ່ັ .0.5U 0:5U 805.7% 1U 1U 1U 1,2-Dichloropropane 1U 1U 1U 34 10 ື9[™]~ ~ 1**Ů**. . .1U _ 1U 1Ů. 10 1.2-Dibromoethane 🤫 🚕 🧀 COOL. 2.% * * 1Û Jagor. 1,3,5-Trimethylbenzene 10 1U 1IJ 1U 1U 1U 10 :3%: 39.7 32,2 : 3 10 1200 1.3-Dichlorobenzene 1Ú . 1U ΊŬ *11I 10 10 AC 300 1U 1.3-Dichloropropane 1U 1U 1U 1U 10 **1**U ;:.jz;;. 10. 1,4-Dichlorobenzene 1U 1U ĴίU 10 \$57 113 ..1U 2.2-Dichloropropane 1IJ 1U 1U 1U 1U 1U 1U 10 ำใบ 2-Chlorotoluene 1∪. 10 **1U .10 10 Ŵ. 300 i di 1U 0.751 0.241 AF F 111 1IJ Α J 10 10 Benzene 1U 1Ù . 1U 1Ú 1 % 1Ů .1U 1Ü Bromobenzene 1U 1U 1U 1U 1U **1**U 111 Bromochloromethane * * 1U 10 1U <u>1</u>U ٦ÎU Bromodichloromethane 10 1U Bromoform 1U 1U 1U 1U 1U 1U 1U -36 111 Bromomethane 10 .1<u>U</u> ์ 1บ ำับ 1U 11/19 10 0.5U 0.26L Α 0.5U 0.5U 0.5U 0.5U 0.5U Carbon Tetrachloride 1Ü 10 Chlorobenzene 1Ú 10 1U 1U 1U Chloroethane 1U 1U 1U 1U 1U 10 1U 8 ं 1Ú Chloroform 1U В. 10 B: 1.5U J В 1U В В 0.531. 1U 1U 1IJ 1U 1U 11.1 1U 1U Chloromethane 0.88L ΑE E 1U ำับ cis-1,2-Dichloroethene 0.84L Α 1.6 -1U 10 J Dibromomethane 1U 1U 1U 1υ 1U 1U 1U 1U Dichlorodifluoromethane 🤞 1U 1U 10 1U 1U . 10 10 1U 1U 1U 1U 1U m/p-Xylenes 1U 🤖 🚋 ્રાંગ 1U 10 1Ú n-Butylbenzene 1U o-Xylene Ĥυ 10 10 1U 10 1Ű 10 sec-Bulylbenzene 1U 1U 1U 10 tert-Butylbenzene 1U 1U 1U rans-1.2-Dichloroethene į1υ. 1U 1U 10 10

Site: Omega Chem OU-2

Case No.: 11-BCCO-15.0 Lab: EMAX

Reviewer: Denise McCaffrey, ESAT/LDC

SDG No.: 01K017

Date: May 8, 2002

QUALIFIED DATA Concentration in ug/L

Tier 3 Table 1A

Analysis Type: Water Samples for Volatiles by

EPA Method 8260B

Station Description :																1					. 1
	GW401-PP07	6-0056		GW401-PP077-0060									GW401-PP079-1088 D1						GW401-PP081-0071		
+	11/01/01			11/01/01			11/01/01			11/01/01			11/01/01			11/01/01			11/01/01		
Dilution Factor :	1	<u> </u>					1 1			1			1			1			<u>[1</u>		
Volatile Compound	Result	Val	Com	Result	Val		Result	Val	Com	Result	Val		Result	Val	Com	Result	Val	Com	Result	Val	Com
Trichlorofluoromethane	1U	1989	eg:	0.48L	J	AE	310	J	EG	0.66L	J	AEF	0.25L	J	AEF	10			1U		-0
Vinyl Chloride	20		* ***	₩ 2 U	Section 2		2U	£ 112	S.E	3 × 2Ú			2Ú			2U	\$2 10 P	.: A\$\$	* 2U		
Acetone	10U	J	D	10U	J	D	130	. J	DGH	7.5L	J	ADF	3L	J	ADF	10U	J ***** **	C	10U	J	D
2-Butanone	100	Ì.	Man	100	مستحقيست		10∪	i£.		10∪		Mana .	. 10U		25.	100	X . \$		10Ü,		
Carbon Disulfide	1U		· g g	1U	w	Promotores	10			1U	300-000	mary.	1U	2000 m	A Marin Control	1U			1U	Mar annual Tarr	y
Toluene	₹ 10	- 21		<u>1U</u>			1U	*		ີ່ງ	. ii maa a	latin .	<u>. 10</u>	للقائم		S 10	M. Ven	2009. :	1U ¹	285	
Trichloroethene	11			16			240	g,	G	240	,	FG	580	·	FG	1U		ವಿಷರ್ಷ-೧೯	1U	متنكلاست	
Chlorodibromomethane	1∪.	and a secondard.	aintheannain.	<u></u>	in when		2 3 1U		e e	% 5 % 1Ü		in all in the	<u> </u>	<u> </u>		X 10°			300° 10 €		
4-Chtorotoluene	1U			10			1U	east to an think	10020740749000	1U		200400-000-000-0	1U	**************************************	**	10		***********	10		
Tetrachloroethene	32 🖠	200	100 (100 (100 (100 (100 (100 (100 (100	34			2300		G	8.8		ŒE.	6.1.	فحدد) Fig	1U	and the		22		
Freon 113	1.2	*******	STATE OF	2.6	2884822.223	E	1000	J	EG	2.9	J	EF	1.8	J	EF	10			1U	-in-in-in-in-in-in-in-in-in-in-in-in-in-	
Ethylbenzene	√ ĵυ	2022		1U			<u>: 102</u>	£WARE	2302	ু ^{৬৬} <u>শু</u> <u>`1U</u>		nor igra	********* .1 U **		Confidence :	<u>;}•,∵1U</u> ↑	1	200	******* 1U*		diame, r
Hexachlorobutadiene	10	J	Ď	10	J	D	1U	J	D	1U	J	D	10	J	D	1U	J	D	1U	J	D
Isopropylbenzene	į iu.			.10			10			. (1U)		Š.	1U		-3 4.00	1U ₂	110°		1U.		
p-Isopropyltoluene	1∪		,	1U	man, versor	مودوردورجي حا	1U			1U	program - materials I	10 . 100P0S 1	1U	796 T 700	y	1U			1U		minist makessay y
Methylene Chloride	<i>≨</i> 10≜	, #		ີ້ໃນ		14		1. 1	震. "	0.21L	J	AF	10	15 . N	<u>E</u>	10	3.	Mad.	10	22.0	
Napthalene	10			1U	******	etern v	1U			1U			1U			1U			1U		
n-Propylbenzene	ίυ		Sila	الله الله			, 1U			10			ĺυ		1 1	j 10	a.a		10)		
Styrene	1U	, ,		10		de maratimo pro s	10			1U			1U	988 - 1890		10			1U		**
1,1,1,2-Tetrachloroethane	1U	i Áz	1 : ::	10	200		10.			10			10	X 注:	3.1	.1U	ili ok	5.3	· 10		
1,1,2,2-Tetrachloroethane	1U		1777,	10			1U	200. Aut 2011 -	onain a sum	10		700 (11 4 12 12 12 12 12 12 12 12 12 12 12 12 12	1U			1U	ya	207.000	1U		
124-Trichlorobenzene	10		1777. 1817.	10	نعبث سينا	3	1Ü*	and a		10			1U			1U			1U	70 diy	
1,2,3-Trichlorobenzene	10			1U			1U			10			10			10		4.4.000000	1U		
1,1,1-Trichloroethane	10	23	2 32	1U			0.56L	Ĵ	À	10	N. A		10			1U			/ / 1U	S. Wale	
1,1,2-Trichloroethane	10		•	1U			10			10			10			10			.10	1	I I
Methyl t-butyl ether	10	Zij		10	2		10			10	کام.		10			1 <u>U</u>	2		1	25.1	
Dichlorofluoromethane	NA			NA			NA			NA			NA	*****		NA			NA		
					3.		*			in an entitlementary are					13.20				-8:22		

Val - Validity. Refer to Data Qualifiers in Table 1B.

Com - Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL - Contract Required Quantitation Limit, N/A - Not Applicable, NA - Not Analyzed

D1, D2, etc. - Field Duplicate Pairs

FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample

Case No.: 11-BCCO-15.0

SDG No.: 01K017

Tier 3 Table 1A

Site: Omega Chem OU-2

Lab: EMAX

Reviewer: Denise McCaffrey, ESAT/LDC

Date: May 8, 2002

QUALIFIED DATA Concentration in ug/L

Analysis Type: Water Samples for Volatiles by

EPA Method 8260B

Station Description :	1						<u>r</u>			Method Blank			Method Blank	,		Method Blani	k					
Sample ID :	GW401-PP08	01-PP080-0071 GW401-PP082-2006 TB GW401-PP082-008						2-0080		MBLK1W			MBLK2W	•		MBLK3W	-		CRQL			
Collection Date :				11/01/01				11/01/01			1											
Dilution Factor :	1			1			1			1	1			1								
Volatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Vai	Com	
1.1-Dichloroethane	1U			111			10			10		-	10			111			1	- ' -	-	
1,1-Dichloroethene	1U		7 · · · ·	1U	33.		1U		主他	103	*		### ##1U	e e e e e e e e e e e e e e e e e e e	KI	10		derallitare.		2 · · · · · · · · · · · · · ·		
1,1-Dichloropropene	1U		·	10		l.	10		1	10	34	s.s.	10			1U			1	A. makamar iday		
1,2,3-Trichloropropane			A 1999	10		W	1U	7.00	** 63	1U		· Ò	10	ST Z		10		i 10.15	7.7			
1,2,4-Trimethylbenzene	10			10	1		10		1	10			10			tυ			1	JAN 246 1444		
1,2-Dibromo-3-chloropropane	20		***	20		1236	, 2U ,	******	3 - con Shoul	ŽÛ	3	* * *	2Ü		4. 3	2U.	2000	1.5	2	7.5		
1,2-Dichlorobenzene	1U			1U			10			10		1	10			1U			1			
1,2-Dichloroethane	0.5U			0.5U			∜0.5U×	arrendende	_معــهـــ	0.5U			0.5U			0.5U	76.	المقشامات	0.5			
1,2-Dichloropropane	1U			1U			1U			10			10			10		1 1047 TO PRO-	1			
1.2-Dibromoethane	1U_	٠	T TOO	ABROGA 1U		. <u>``</u>	1Ü		5 149	₹1 <u>0</u>	2:	000 His	ية مارية مارية المارية			10		WYG.	1			
1,3,5-Trimethylbenzene	1U	,	14 (\$10)	1U			1U			<u>1U</u>			1U	· · · · · · · · · · · · · · · · · · ·	<u></u>	1U			1			
1,3-Dichlorobenzene	1U			10		ari A	1.70711U	25	ing figure	1U	» , »	White is	*U	August 1. Olikus kan	<u> </u>	10*			1	· · ·		
1,3-Dichloropropane	1U		788971157	10			1U	gen, en ye e		1U			10		,	1U	w - xx.		1			
1,4-Dichlorobenzene	1U	25°.		10		X.X	1U	x		<u>. 1</u> Ų.		298° :	. 1 <u>U.,</u>				addi .	.#. 18	2. L 1_			
2,2-Dichloropropane	10	w · · · · · · · · · · · · · · · · · · ·		1U		. بردهرود .	1U	m, m, r	,	1U		30000000000	,10	a	ar is week	1U	27138600		1	rypage o ed	months for a de	
2-Chlorotoluene	3. 1U	.s. I	Â.	₹ 10		W.	1 U	&	1.54	1 0		<u> </u>	10	بې، دند. رسد		10		31 1	<u> 1.</u>			
Benzene	1U	v	. **** **.	1U		25000	0.44L	J	A	1U	2 .9m	50.880%	1U	2000	:*** :	1U	77% 14	.4. 22	1	e : ::::::::::::::::::::::::::::::::::		
Bromobenzene	1U	\$	JA ?	10		🛣	1U			10			10	2 0.	*****	10		O.Z	1		<u>.</u>	
Bromochloromethane	1U		in mini	·1U	Ear. 1.20	See Alma	10	35h	m s Ne cashet	1U	y		, 1U ,			1U	25 (1988)		1	150.25T 11	ggr _a an in	
Bromodichloromethane 2	<u> 10</u> .	L	1. 33	10	C.E.Y.	ž	10		and the	10.	1. L		10		3		820.0		100 da. 1 .		الديتملاأ	
Bromoform	1U			10			1U		-	1U		a management	10	,		1U			11	80	**********	
Bromomethane	1Ú_	· namero ·	····	<u>1</u> U			1U			1U		Ann and	1U .	3200	.	1U		1.1	L.: 12	~ 	L	
Carbon Tetrachloride	0.5U			0.5U		.	0.5U	10 3 7 7 7 10 3 7 7 7 1		0.5U	· · · · · · · · · · · · · · · · · · ·	~~~~~	0.5U			0.5U	, .	.**	0.5	ļ		
Chlorobenzene	1			1U			. <u> </u>	\$2.00 m	·	10			1U.	<u>.</u> .		1 <u>U</u>		°			``.	
Chloroethane	10			10	Ι.	٠	1U			1Ų			10			1U	1 1		1			
Chloroform	1 <u>U</u>			0.64L	J	AE.	1U	e. Kist.	d .	10			<u> 10</u> 10			1 <u>U</u>		<i>)</i> 1,	<u> </u>			
Chloromethane	10	5		<u>1</u> U			. 1U		l	1U			1U 7 - 1 1 U -	1		1U	ŀ.		1			
cis-1,2-Dichloroethene	. 10		1.11. 11	. 10			1U	1, 1997	š	1U		7 iii		:		1U.	(&).	X.3	\$	** .		
Dibromomethane	<u>1U</u>	187 5		1U			10	Ships.1	ä .:	1U	21		1U			1U			1	;-		
Dichlorodifluoromethane	1U	- 1 A	at i	10			1U	: 225	to:	1U	122	×	: :::::::::::::::::::::::::::::::::::::			1U,	a d	Gara -	[.*	à	2	
m/p-Xylenes	10	**************************************		10	g		1U	. ;		1U] : · · ; [1U			1U	1 I		1		gran st	
n-Butylbenzene	10	1 1 1	*: .a	*1U			Saw. 10.	1480 L. A.	r i i i	1 <u>Ų</u>	A - 3	200	.;			10	% ·	.: ' `	1.	22	\$	
o-Xylene	1U	77 7		1U	, ,,,,,,,,,	*****	1U	*47		1 <u>U</u>		(, x) -	1U		, · · · · ·	1U	1.15,12			è unita	7	
sec-Butylbenzene	1U		l	10			1U	49.1		L	1		101	`		1U			1.	· · · ·	έ _π .	
tert-Butylbenzene	10		gr.	10			1U			1U	[· [1U			10		v +	1	2,200	8° 4.	
trans-1,2-Dichloroethene	10	1. 1.		1U			-1U			1U	<u> </u>	i.c.	, 1U ,	1. Off 15	. .	10		1 July 1	7 € 35 € 1		. P	

Case No.: 11-BCCO-15.0

SDG No.: 01K017

Site: Omega Chem OU-2

Lab: EMAX

Reviewer: Denise McCaffrey, ESAT/LDC

Date: May 8, 2002

QUALIFIED DATA
Concentration in ug/L

Analysis Type: Water Samples for Volatiles by

EPA Method 8260B

Station Description :							· .			Method Blank			Method Blank			Method Blank	•	1	}			
Sample ID :	GW401-PP08	30-0071		GW401-P	P082-2006	ТВ	GW401-PP0	82-0080		MBLK1W		MBLK2W			MBLK3W		1	CRQL				
Collection Date :	11/01/01			11/01/01			11/01/01								•							
Dilution Factor ;	1			1			1	h			1			1			1					
Volatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	
Trichlorofluoromethane	1U			1	U		1U			10			1U			1U			1			
Vinyl Chloride	2U			2	Ū	1	2U		4	2Ú		777	2Ü	1997;	17 Y	2U					71	
Acetone	10U	J	D	10	U J	Ď	6,9L	J	A	10U	J	D	10U			10U	J	С	10			
2-Butanone	10U			10	المراجعة المراجعة	30.00	3L	J	Α	10U		. , , , ,	10U	3		10U			10		;	
Carbon Disulfide	1U				U		10			10			1U			1U			1			
Toluene .	1U_`			1	υ\ * *	S. a. Anna	0.44L	4. J. 4	. A	10		102	. 10.	1223		, 1U,		arakta.	3/ - 3 - 33/1	<u> </u>	1 4	
Trichloroethene	1U		7		U		10		*	10			1U			1U			1		1	
Chlorodibromomethane	,1U.	1 7	. J. S	1	ا اُنَ		10		.;	10			1U	1000				1	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~			
4-Chlorotoluene	1U			1 1	U		10			1∪	1 1		1U			10			1		l" ' '	
Tetrachloroethene	5.1	Britis in	1 35	0.2	IL J	A	2.8		10	. ⊛e. ∛iU	***	2003 (\$E)			* ***	. 1U	1000	347	1.5	120	492	
Freon 113	1∪				υ		1U		l	10			1U			1U			1			
Ethylbenzene	1U°			X	U	e da en en en Regeneral	1U			1 0			e	9	34.	1U		المنطق فلي	1.		est pur	
Hexachlorobutadiene	1U	J	D		n l	D	1U	J	D	10	J	D	10	· J	D	1U	J	D	1			
Isopropylbenzene	√. 31U			12 x 21	Ü		ं 1U	3.38	<u> </u>	10	73.5		10			10	3 3		.1			
p-Isopropyltoluene	1U			1	U		10			1U			10			1U			1			
Methylene Chloride	1U			1	ט	4	10	48		ຳ 1ປ			10	7/	3.7	10		7. VO.	₩ ₩			
Napthalene	1U			1	U		10			1U			10			1U			1			
n-Propylbenzene	10				ָטֹ		10		177	1U		-,	10		4				1	200 T		
Styrene	1U				U		10			10	ll.		10			1U			.1			
1,1,1,2-Tetrachloroethane	. 1U	-			יט		10			🦥 🐧 1Ú,)	. 291	الموسدة ي	10			10		فنقت معت				
1,1,2,2-Tetrachloroethane	1U				U		10			1U			10			1U			1			
1,2,4-Trichlorobenzene	10				Ü.		10			10		- 33- 1 - 1 - 1 - 1	10			10		A S	o kala ji			
1,2,3-Trichlorobenzene	1U			L •	U	1	10		l	1U			1U			10			1			
1,1,1-Trichloroethane	> 1U				U	1044 . 1,0	1U			1Ú			1U.			ź. ĺÚ	1		1.		44.8	
1,1,2-Trichloroethane	10				Ū		10			"^ 1U			1U			1U		,	1			
Methyl t-butyl ether∷	10			1	Ú		10			1U	222		1Ů			10		· Aile	¥ *. 1	4 .	3.	
Dichlorofluoromethane	NA NA		I	NA			NA		1	NA			NA	vonovenite/***		NA		~/\$60000	NA NA	**********	**************************************	
	-4.5	87.			37 J. J.					1896. A S. C.			,				ر ا ب	LIW		. ×.		

Val - Validity. Refer to Data Qualifiers in Table 1B.

Com - Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL - Contract Required Quantitation Llmit, N/A - Not Applicable, NA - Not Analyzed

D1, D2, etc. - Field Duplicate Pairs

FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

- U The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.